

## Specifications

|                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>General</b>                           |                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Rx Frequency Range:                      | 30 kHz - 58 MHz (operating)<br>160 - 6 m (specified performance, Amateur bands only)                                                                                                                                                                                                                                                                                                                                           |
| Tx Frequency Ranges:                     | 160 - 6 m (Amateur bands only)                                                                                                                                                                                                                                                                                                                                                                                                 |
| Frequency Stability:                     | ±1 ppm/hour (877° F / +25° C, after warm-up)                                                                                                                                                                                                                                                                                                                                                                                   |
| Operating Temperature Range:             | 14° F ~ 122° F (-10° C ~ +50° C)                                                                                                                                                                                                                                                                                                                                                                                               |
| Emission Modes:                          | A1A (CW), A3E (AM), J3E (LSB, USB), F3E (FM)                                                                                                                                                                                                                                                                                                                                                                                   |
| Frequency Steps:                         | 1/10/20 kHz (SSB & CW), 100/200 Hz (AM & FM)                                                                                                                                                                                                                                                                                                                                                                                   |
| Antenna Impedance:                       | 50 Ohms, unbalanced                                                                                                                                                                                                                                                                                                                                                                                                            |
| Power Consumption:                       | RX (signal present) 1.5 A<br>TX (100 W) 22 A                                                                                                                                                                                                                                                                                                                                                                                   |
| Supply Voltage:                          | DC 13.8 V ± 10 %                                                                                                                                                                                                                                                                                                                                                                                                               |
| Dimensions (WxHxD):                      | 9" x 3.3" x 8.5" (229 x 84 x 217 mm)                                                                                                                                                                                                                                                                                                                                                                                           |
| Weight (approx.):                        | 8.6 lb (4.0 kg)                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Transmitter</b>                       |                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Power Output:                            | 100 Watts (25 Watts AM carrier)                                                                                                                                                                                                                                                                                                                                                                                                |
| Modulation Types:                        | J3E (SSB): Balanced<br>A3E (AM): Low-Level (Early Stage)<br>F3E (FM): Variable Reactance                                                                                                                                                                                                                                                                                                                                       |
| Maximum FM Deviation:                    | ±5.0 kHz / ±2.5 kHz                                                                                                                                                                                                                                                                                                                                                                                                            |
| Harmonic Radiation:                      | Better than -60 dB (160 - 10 m Amateur bands)<br>Better than -70 dB (6 m Amateur band)                                                                                                                                                                                                                                                                                                                                         |
| SSB Carrier Suppression:                 | At least 60 dB below peak output                                                                                                                                                                                                                                                                                                                                                                                               |
| Undesired Sideband Suppression:          | At least 60 dB below peak output                                                                                                                                                                                                                                                                                                                                                                                               |
| Audio Response (SSB):                    | Not more than -6 dB from 300 to 2400 Hz                                                                                                                                                                                                                                                                                                                                                                                        |
| Microphone Impedance:                    | 600 Ohms (200 to 10 kOhms)                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Receiver</b>                          |                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Circuit Type:                            | Double-conversion superheterodyne                                                                                                                                                                                                                                                                                                                                                                                              |
| Intermediate Frequencies:                | 1st IF 67.899 MHz / 2nd IF 24 kHz                                                                                                                                                                                                                                                                                                                                                                                              |
| Sensitivity (IPO OFF, ATT: OFF):         | SSB (BW: 2.4 kHz, 10 dB S+N/N):<br>0.25 µV (1.8 - 2.0 MHz)<br>0.25 µV (3.5 - 30 MHz)<br>0.20 µV (50 - 54 MHz)<br>AM (BW: 6 kHz, 10 dB S+N/N):<br>30 % modulation (400 Hz)<br>2.00 µV (1.8 - 2.0 MHz)<br>2.00 µV (3.5 - 30 MHz)<br>1.00 µV (50 - 54 MHz)<br>FM (BW: 10 kHz, 12 dB SINAD):<br>0.50 µV (28 - 30 MHz)<br>0.30 µV (50 - 54 MHz)<br>* There is no specification in frequency ranges not listed.                      |
| Squelch Sensitivity (IPO OFF, ATT: OFF): | SSB/CW/AM:<br>2.50 µV (1.8 - 30 MHz)<br>1.00 µV (50 - 54 MHz)<br>FM:<br>0.32 µV (28 - 30 MHz)<br>0.18 µV (50 - 54 MHz)<br>* There is no specification in frequency ranges not listed.                                                                                                                                                                                                                                          |
| Selectivity (-6/-60 dB):                 | Mode: -6 dB -60 dB<br>CW-N: 0.75 kHz or better 0.7 kHz or less<br>SSB: 2.2 kHz or better 4.5 kHz or less<br>AM: 6 kHz or better 20 kHz or less<br>FM: 15 kHz or better 30 kHz or less<br>FM-N: 9 kHz or better 25 kHz or less<br>80 dB or better<br>80 dB or better (160 - 10 m Amateur bands)<br>85 dB or better (6 m Amateur band)<br>2.2 W into 4 Ohms with 10 % THD<br>4 to 16 Ohms (8 Ohms nominal)<br>Less than 4000 µVW |
| Image Rejection:                         | 80 dB or better                                                                                                                                                                                                                                                                                                                                                                                                                |
| IF Rejection:                            | 80 dB or better (160 - 10 m Amateur bands)<br>85 dB or better (6 m Amateur band)                                                                                                                                                                                                                                                                                                                                               |
| Maximum Audio Output:                    | 2.2 W into 4 Ohms with 10 % THD                                                                                                                                                                                                                                                                                                                                                                                                |
| Audio Output Impedance:                  | 4 to 16 Ohms (8 Ohms nominal)                                                                                                                                                                                                                                                                                                                                                                                                  |
| Conducted Radiation:                     | Less than 4000 µVW                                                                                                                                                                                                                                                                                                                                                                                                             |

Specifications are subject to change without notice, and are guaranteed within the amateur bands only. Frequency ranges will vary according to transceiver memory, check with your dealer.

## Option

|                                                                                                                                       |                                                                                                                                                                                                                                                           |                                                                                                                                                |                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| <br><b>MD-200ABX</b><br>Desk-Top Dynamic Microphone | <br><b>MD-100ABX</b><br>Desk-Top Microphone                                                                                                                             | <br><b>MH-31ABX</b><br>Hand Microphone                       | <br><b>MH-35ABX</b><br>DTMF Hand Microphone |
| <br><b>YH-77STA</b><br>Open-Air Stereo Headphones  | <br><b>FP-1023 (USA Only)</b><br>External Power Supply (13.8 VDC 23 A)                                                                                                 | <br><b>FP-1030</b><br>External Power Supply (13.8 VDC 25 A) | <br><b>MMB-90</b><br>Mobile Bracket        |
| <br><b>MHG-1</b><br>Side Carry Handle              | <br><b>QUADRA 1000</b><br>Linear Amplifier<br>1 kW Power output<br>16 m. 500 W/USA version)<br><b>VP-1000</b><br>VL-1000 Power Supply<br><b>CT-11B</b> Band Data Cable |                                                                                                                                                |                                                                                                                                |

• Packet Cable CT-38A

About this brochure: We have made this brochure as comprehensive and factual as possible. We reserve the right, however, to make changes at any time to equipment, optional accessories, specifications, model numbers, and availability. Precise frequency ranges may be different in some countries. Some accessories shown herein may not be available in some countries. Some information may have been updated since the time of printing; please check with your Authorized Yaesu Dealer for complete details.

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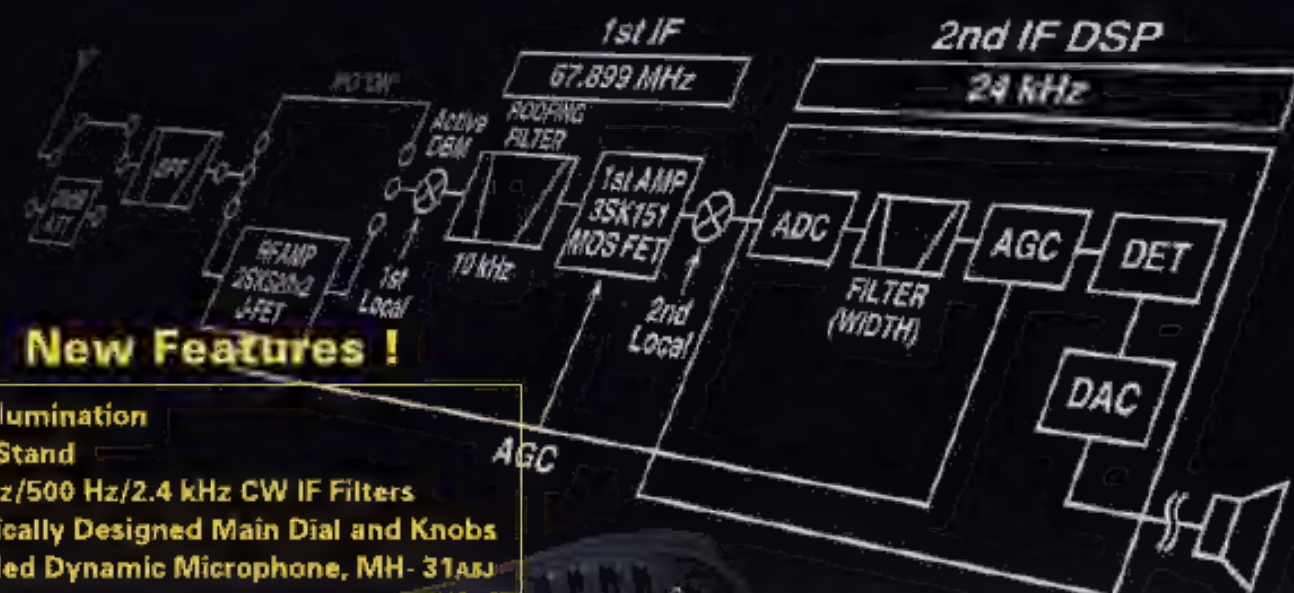
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HF/50 MHz All Mode Transceiver

# FT-450D

## COMPACT HF/50 MHz TRANSCEIVER WITH IF DSP



**YAESU**  
Choice of the World's Top DXers™





# Proven performance and technology with YAESU state-of-the-art IF DSP

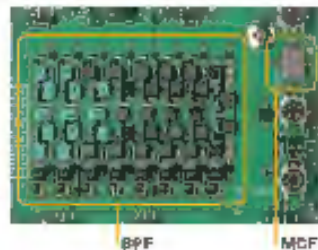
## The ultimate compact HF/50 MHz transceiver – YAESU FT-450D

### HF/50 MHz 100 W All Mode Transceiver FT-450D with Built-In Automatic Antenna Tuner

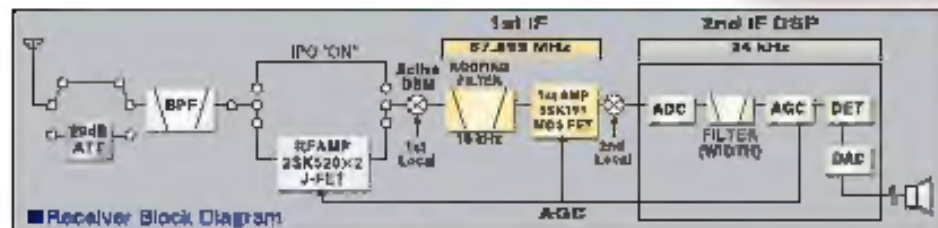
#### The Real DX Receiver!

The 67.899 MHz 4 pole roofing filter (MCF) and 8 band-pass filters at the RF stages, provide excellent suppression of out-of-band interference.

The interference-filtering begins in the "RF" stages, with a double conversion superheterodyne (1st IF 67.899 MHz / 2nd IF 24 kHz) system. The 8 band-pass filters at the RF input help eliminate out-of-band interference, followed by the RF AMP (2SK520 x 2) that feed into the active DBM (1st local) assure excellent dynamic range. At the 1st IF stage, a powerful 4 pole roofing filter with a 10 kHz bandwidth and excellent shape factor, substantially reduces adjacent signal interference. Then, the YAESU high performance DSP at the 2nd IF stage / 24 kHz permits easy management of AGC, interference rejection, audio tone control, and noise reduction, for clear and quiet reception. The 20 dB ATT (Attenuator) and IPO (Intercept Point Optimization) feature allow the operator to optimize the characteristics of the receiver front end to improve receiver dynamic range.



Actual Size / 9" x 3.3" x 8.5" (229 x 84 x 217 mm) (w/o knob)



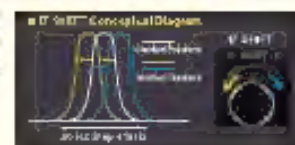
#### World-Class Performance in an easy-to-operate HF/50 MHz transceiver package with YAESU's unique IF DSP.

The legendary YAESU IF DSP system, well regarded among top and world-class DX operators, is now available in an easy to operate package. The new IF DSP system uses an ANALOG DEVICES, ADSP-BF631SBST IC, with high speed 16-bit, floating point architecture. Designed and programmed with the unique objective of "Enhanced Transmit Signal Quality" and "Advanced Receiving Interference Suppression". These features now come in one easy to operate HF/50 MHz Transceiver, ideal for everyone, new licensee or serious DX operator.



#### Independent Fast IF SHIFT Control

Vary the IF SHIFT higher or lower for effective interference elimination.



#### Functions for eliminating interference together with IF SHIFT

Press one of the DSP operation buttons and adjust the function with the DSP/SEL knob.

#### CONTOUR Control Operation

The Yaesu unique CONTOUR filter provides a gentle shaping of the passband. Specific frequency components may be suppressed or enhanced, to improve the sound and readability of the received signal with the DSP system.



#### MANUAL NOTCH

##### NOTCH

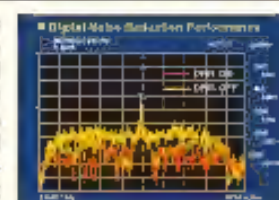
Highly effective system that can remove an interfering beat tone or signal.



#### Digital Noise Reduction (DNR)

##### DNR

The DNR system analyzes the profile of the noise found on the HF and 50 MHz bands. Random noise is reduced and the sound and readability of the object signal is enhanced.



#### IF WIDTH

##### WIDTH

DSP IF WIDTH Tuning provides selectable IF passband widths to fight QRM, (SSB - 1.8 / 2.4 / 3.0 KHz) (CW - 300 Hz / 500 Hz / 2.4 KHz)



#### Digital Microphone Equalizer

FT-450D has a unique Digital Microphone Equalizer with 10 preset functions. The custom settings may be set to match your voice characteristics for maximum power and punch, designed for optimal DX operation.



#### DSP VOX Operation

VOX operation is controlled by the DSP system! Enjoy smooth and seamless Voice Operated TX/RX control with this latest technology!

#### Two Voice Memories (SSB/AM/FM)

Store up to 10 seconds of audio in each memory, for contesting and portable field operation. The DSP system now makes this feature easy to operate.

#### Digital Voice Announcement function

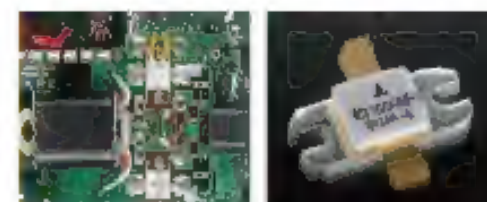
FT-450D Voice Announcement Feature will announce the Frequency, Mode and S-meter readings.

#### Large Informative Front Panel Display with convenient Control knobs and Switches

Even though it is a convenient compact size (9"x3.3"x8.5" / 229 x 84 x 217 mm), the FT-450D has a large and bright display, almost 25 % of the front panel. The original LCD negative type display shows the Frequency, S-meter, a Graphical indication of RF to IF settings, and the DSP Interference Elimination settings (Contour, Notch, DNR, Width and Shift). The icons and large character key buttons are easy to identify and operate. KEY, MIC and PHONE jacks are provided on the front panel for handy access.

#### The Rugged aluminum die-cast chassis with large cooling fan is made for your heavy-duty, extended high power operation.

The newly designed push-pull power MOSFET (RDF100HHF1) amplifiers guarantee powerful and reliable 100 W output operation. The FT-450D's rugged 480 cc aluminum die-cast chassis, with a large 2.8" x 2.8" (70 x 70 mm) quiet thermostatically controlled cooling fan, is a solid foundation of the power amplifier during long hours of field use or home contesting operation.



#### Outstanding CW Features

- Selectable 300 Hz/500 Hz/2.4 kHz CW IF Filters
- Built-in Electronic Keyer
- Speed adjustable between 4 WPM and 60 WPM
- Weight (Dot/Dash Ratio) adjustable
- CW T/R Recovery Delay programmable from 30 ms to 3000 ms
- CW Beacon - Up to 118 characters using the CW message keyer 3 memory banks
- CW Pitch Adjustment (between 400 to 800 Hz, in 100 Hz steps)
- CW Spotting (Zero-Beating) function
- CW Reverse - provides BFO injection from LSB-side instead of default USB-side
- CW Sidetone Generator
- CW Keying on SSB modes
- CW Keying using Up/Down keys on the microphone
- CW Training feature sends random Morse Code via the built-in sidetone generator

#### Operate anywhere using optional internal or external antenna tuning systems!

The FT-450D's ATU (Automatic Antenna Tuner) includes 100 memories for quick tuning during field operation when using a folded dipole, etc. In addition, the YAESU original and unique Antenna Tuning systems, such as the External Automatic Antenna Tuner FC-40 or Active Tuning Antenna System ATAS-120 for mobiles, are ready to be automatically operated with the FT-450D front panel controls.



#### Additional features to support the FT-450D's operation

- Large, Easy-to-read digital S-meter with peak hold capability
- QMB (Quick Memory Bank)
- Key Illumination
- Versatile Memory System, up to 500 memory channels that may be separated into as many as 13 Memory Groups
- TXW to monitor the transmit frequency when split frequency operation is engaged
- Clarifier
- Built-in TCXO for incredible  $\pm 1$  ppm/hour ( $\pm 477^\circ\text{F} / 25^\circ\text{C}$ , after warm up)
- 20 second Digital Voice Recorder
- Dedicated Data Jack for DATA operation (FSK RTTY available)
- CTCSS Operation (FMT)
- My Band/My Mode functions - to recall your favorite operating environments
- Lock function
- CS Switch to recall a favorite Menu Selection directly
- TOT (Transmitter Time Out Timer)
- Various Scan functions
- CAT System (D-sub 9 pin) for Computer Programming
- Cloning capability
- MH-31Aa Dynamic Microphone Included

